Resection of the Elbow for Ankylosis.

In an able essay in the *Revue Mensuelle de Méd. et de Chir.*, bearing that stamp of sound judgment and wide experience and research which we should expect from this author, M. OLLIER makes several propositions, which put the question of resection of the elbow-joint in a wholly new light, deserving the attention of all surgeons. The entire subject is handled at considerable length, anatomically, clinically, and historically, and with great care, but his practical conclusions may be briefly summarized as follows.

He admits that the grounds upon which we usually resect the elbow-joint for disease are sound, viz., to put an end to long and wasting suppuration, etc. But he goes further, and advocates the operation in all cases where ankylosis is imminent. He enters a protest against the generally received idea "that ankylosis at a right or slightly obtuse angle after grave arthritis of the elbow should be regarded as a fortunate result, which it is proper to respect." This result should, he says, be forestalled, and "whether the arthritis be cured or not, one is justified in resecting with the one aim in view of restoring the movements of the joint if the subject is in a condition as regards age, social position, etc., which render the operation certain in its results and necessary."

But, again, if an existing ankylosis is bilateral, the operation is indisputably called for, no matter at what angle it has taken place; also if unilateral, when the subject is young and likely to be much troubled in his occupation by the loss of motion of the joint.

The author regards himself as justified in these conclusions by a careful study of the results of recorded cases, and by the success of his own operations, which are described in detail in the paper before us. But he guards himself in thus advocating very free operation. He remarks very truly that "before undertaking a resection of the elbow for ankylosis we must examine and know the conditions which experiment has shown to be necessary for the establishment of a new articulation." These he points out in his paper. We have two great dangers to avoid: in young persons a return of the ankylosis, in adults undue mobility of the new joint, calling in each case for an intelligent modification of the operative procedure. He recommends the subperiosteal method, but, if so, a zone of periosteum corresponding to the line of the new joint must be removed, so that there shall be a break in the new bone formed, and ankylosis may thus be prevented. The bones should first be separated with chisel and mallet if ossified too firmly to be broken with the hand. Mere removal of a cuneiform portion of bone at the joint will not answer: a complete resection must be performed. And even so in young subjects it requires the greatest care to prevent ankylosis returning.

Finally, in the subsequent treatment of the case, the surfaces of section must be kept apart to a degree proportionate to the tendency to ankylosis depending on the youth of the subject, etc. Other things being equal, they will be brought nearer together, the farther the individual has passed the period at which osseous development ceases.—*London Med. Record*, March 15, 1879.

Amputation at the Hip-joint; Iliac Arteries Compressed by Lever.

At a recent meeting of the Clinical Society of London (*Lancet*, April 26, 1879) Mr. A. PEARCE GOULD read notes of a case of amputation at the hip-joint, in which the iliac arteries were compressed by Davy's lever. The patient, a man aged twenty-eight, was admitted into Westminster Hospital with advanced disease of the hip. Excision of the head of the femur, which was separated from the neck, was performed, but it became necessary to remove the limb.

Mr. Gould did this by prolonging his excision wound downwards a short distance, and then severing the thigh circularly—an oval amputation in fact. He claimed for this method that it considerably lessened the extent of the cut surface, and the uninjured inner part of the thigh was very useful in supporting the posterior flap, and in aiding the nutrition of the flaps. He recommended it especially in cases of amputation following excision. The iliac vessels were controlled by Davy's lever passed into the rectum. There was no flow of blood during the amputation, only that lying in the severed vessels escaping. At the end of the operation the blood in the tray, mixed with serum and sawdust, measured less than three ounces. In comparing Davy's lever with Pancoast's tourniquet, which is usually employed, Mr. Gould held that it had the following advantages: 1, it disturbed the circulation less; 2, it did not interfere with the respiratory movements, nor was it interfered with by them; 3, its use was not prevented by obesity, rigidity of the abdominal walls, or the existence of abdominal tumours; 4, the pressure required was less; 5, less liability to injury of viscera and peritoneum; 6, greater ease and security in application; 7, greater cheapness and durability; 8, if the lever were not at hand, its place could be more easily supplied. The lever was first suggested and used by Mr. R. Davy, in a young child, in January, 1877; then by Mr. Gould, in December, 1878, and since then by Mr. H. Marsh, Mr. Armstrong, Mr. Davy, and Mr. Cadge, and in every case successfully. Mr. Gould showed some deep sutures which he had employed to maintain the flaps in exact apposition. They were steel pins riveted at one end to a flat oval disk of vulcanite; this pin is passed through the flaps up to the disk, and then a smaller disk of pure black rubber is slipped down over the pin to the other flap; by its elasticity it grips the pin. Three of them were used, and held the flaps so firmly that the patient was able to turn in bed and move his stump without assistance. The patient progressed very favourably for forty hours, but died at the end of sixty-eight hours, and at the autopsy all the veins of the left foot, leg, and thigh were found to be filled with black coagulum, which reached just into the common iliac vein. There was no sign of injury of the rectum, peritoneum, or arteries.

Mr. MACNAMARA said this was the second case in which he had seen Mr. Davy's method employed—the first being an anæmic child in whom amputation was performed for hip disease. No more than an ounce and a half of blood was lost, and the child did well. Still, the method required great care on the part of the assistant; and the length of the lever from the artery rendered the compression somewhat uncertain. It might injure the rectum, especially in a child. For these reasons he had advised Mr. Gould not to use it, but the result falsified his fears. A few days after he asked Mr. Davy to demonstrate the procedure on the dead subject; and, as it happened, it was found that the lever could not be passed into the rectum of that case. So that it was quite possible it might sometimes fail. At any rates, the condition of the bowel should be first ascertained.

Mr. MARSH had lately assisted Mr. Young, of Sevenoaks, in an amputation for hip disease, he (Mr. Marsh) having charge of the compressor. He found no difficulty in introducing the rod nor in compressing the vessel, and during the amputation very little blood was lost. The plan was worthy of a careful trial, for Lister's tourniquet had its defects, especially if the patient be in a low condition. A short time ago he amputated the thigh high up for secondary hemorrhage, and, not daring to put on Lister's tourniquet, the artery had to be compressed digitally. The patient died, losing more blood from the operation than he could afford. The lever may be useful in the treatment of femoral or iliac aneurism.

Mr. FURNEAUX JORDAN had no experience of Mr. Davy's lever, which seemed to be a useful and simple addition to surgical appliances. He had recently recorded in the *Lancet* a method of amputation at the hip-joint by enucleation of the femur, separating soft parts nearly to the knee-joint, then dividing the thigh at its lower part. In that way a large amount of tissue was preserved, and greater safety insured. Only three days ago he had performed this operation a second time, the case being one of rapidly-spreading gangrene. The case was doing fairly well. He had also heard that at the General Hospital, Nottingham, both Mr. Littlewood and Mr. Baddard had performed the operation, giving a series of four successful cases by this method.

Mr. M. **BAKER** inquired whether in Mr. Gould's case the thrombosis was due to the compresssion of the iliac vein by the lever. He had found no difficulty in the use of Lister's tourniquet in a case of amputation at the hip; and in two other cases at the Evelina Hospital, where the operation was performed for hip disease, there was no difficulty in compressing the abdominal aorta. In these cases it would not have been necessary to use Davy's lever. Mr. Jordan's method might be of service with reference to antiseptics, but the time it must take would surely favour the production of shock sooner than by a more rapid method. He had recently heard of a case where an hour and a half was occupied in the operation.

Mr. **HEATH** had assisted Mr. Swayne, of Devonport, in an amputation of the same kind as that subsequently performed by Mr. Lee. The case was one in which the head of the femur had been previously excised; but such cases belonged to a different category from those where a tumour had to be dealt with; and it was *these* cases which were so fatal. Mr. Jordan's method might be described as an elongation of Mr. Lee's. The difficulty experienced in passing the lever in a subject after death might not obtain in the living body, the condition of the rectum being so different in the two cases.

Mr. **HOWSE** said that in amputation of the hip the choice lay between digital compression of the iliac artery and its compression by Mr. Davy's method; and he could welcome any device by which the great strain of compressing the artery digitally might be avoided. Mr. Jordan's method, although applicable to cases of amputation after excision, was, as Mr. Heath had said, far less feasible when tumours were concerned than when the head of the femur was *in situ*. In such cases too much time would be required for the operation. Then it was essential to remove all sinus-tissue, which formed so great a factor in the after-history of the patient, for if it were left, lardaceous disease might subsequently develop. In all his cases he had made flaps of skin only.

Mr. F. **JORDAN** said that in no case had the operation by the method he had described taken more than four or five minutes to accomplish.

Mr. G. **BROWN** asked what was the cause of the thrombosis. It seemed reasonable to attribute it to the absorption of carbolic acid. If produced by the pressure of the lever, the clotting would have occurred on the opposite side.

Mr. **HULKE**, in calling on Mr. Gould to reply, said that the discussion had been gratifying. The oval operation was a favourite one of Guthrie's, and he had helped Charles Guthrie to do it in 1849 or 1850, making an external and internal skin flap, and cutting the muscles short. In military surgery this form of stump was very preferable to a heavy flap in cases where the wounded required removal. The disadvantages attributed to Lister's tourniquet had followed its prolonged use, and not when it was applied only for a short time. The lever should not be advocated unfairly.

Mr. **GOULD**, in reply, said he believed there was a stricture of the rectum in the case which Mr. Macnamara had referred to. The lever had been once used for aneurism, but only for twenty minutes. In his case there was no sign of injury to the vessels discovered after death. He attributed the thrombosis to carbolic-acid poisoning.

Sutural Junction of a Divided Ulnar Nerve.

At a recent meeting of the Clinical Society of London (*Lancet*, May 24, 1879) Mr. HULKE read the notes of a case of sutural junction of the ulnar nerve fifteen weeks after its complete severance by a roofing-slate; early restoration of function. He said the procedure was a rare one, but where practised had already given most satisfactory results, and held out promise of restoration to many an otherwise crippled limb. This case was interesting from the long interval that elapsed after the injury before the operation was performed, and from the speedy restoration of commencing nerve function, which was only three or four weeks after the operation. The patient, a blacksmith, aged fifty-three, was struck across the inner side and front of elbow by a slate dislodged from a roof. The wound thereby produced healed slowly, and was painful from the first, the pain assuming a neuralgic character. The forearm and arm wasted; the man's health suffered, and he was quite unable to do any work. Fifteen weeks afterwards all parts supplied by the ulnar nerve in the hand were numbed and cold, and the scar in front of the elbow was exquisitely tender. The patient was then chloroformed, and an Esmarch's bandage put on. The ulnar nerve was exposed at the elbow, and found to be completely divided, and the two ends widely separated. The upper end was bulbous, and was dragged out of its course by the cicatrix; the lower end was shrivelled. In both ends were minute particles of slate embedded. Both ends were removed by clean transverse sections, and were then found to be three-quarters of an inch apart. In order to bring them together the upper end was stretched and drawn down, and joined as closely as possible to the lower one by four silk sutures passed through the sheath. Absolute contact was not obtainable. The operation was done, and the wound afterwards dressed antiseptically. The neuralgia ceased at once, and did not recur, and in less than six weeks the patient returned home. Sensation, which had begun to return about a month after the operation, rapidly increased, so that upon leaving the hospital the man went at once to his work.

Mr. MARSH said that two days ago Mr. Savory had operated on a similar case, where the ulnar nerve had been divided at the elbow, almost as in Mr. Hulke's case, but catgut sutures were used, and he did not think the upper end was stretched. Mr. Marsh also referred to Mr. Wheelhouse's case of suture of the sciatic nerve, where function was restored to a completely palsied limb. Such cases showed the great advances of surgery, for he remembered ten years ago, at the Children's Hospital, the case of a child whose lower limb was perfectly paralyzed from a deep wound in the thigh, but where no operation was entertained.

Dr. ALTHAUS observed that the length of time which had elapsed from the date of injury showed what might be done by surgery. Physiological experiments had shown that if two ends of a severed nerve be approximated to within a quarter of an inch there would be perfect reunion; but if a longer interval were left then union only took place by fibrous tissue. In cases of simple division without excision of a part of the nerve union took place in from seven to ten days; if a small part were excised, union was delayed for two, three, or even four weeks. Hitherto a large number of cases of nerve-injury had been looked on as incurable.

Mr. HEATH asked Mr. Hulke whether observations upon the return of sensation were made especially on the ring finger; for it was stated that after division of a nerve there may be a reverse current by means of anastomotic filaments with neighbouring nerves—in this case the median. Some years ago, in laying open some sinuses about the elbow, he divided accidentally the ulnar nerve, but im-